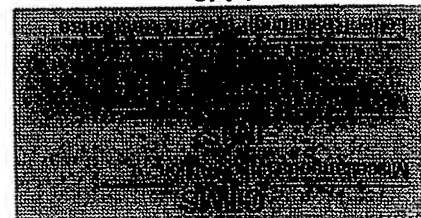


OUTGOING DOCUMENT INDEX SHEET

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OUTGOING



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892  
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PTO INTERNAL  
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NFDR  
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SEOREO  
Sequence Problem Alt. from Examiner  
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Compact Disk Review Checklist

9/15/03

**Office Action Summary**

Application No.

10/518,934

Applicant(s)

TOHJI ET AL.

Examiner

Patricia L. Hailey

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>22 December 2004</u> . | 6) <input type="checkbox"/> Other: _____  |

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on December 22, 2004.

***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. *Claims 1 and 3-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10/507,895.*

Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to photocatalysts comprising cadmium sulfide and having capsular structure, characterized by supporting platinum.

The combination of claims 1 and 3-5 in this application reads upon that of claim 1 in the copending '895 application.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. *Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 10-110401 (translation provided by Examiner).*

Japanese Patent '401 teaches a semi-conductor photocatalyst characterized by encapsulating a semiconductor particle by a polymer (considered to read upon the limitation "capsular structure").

Examples of the photocatalyst include cadmium sulfide, upon which platinum is supported. See paragraphs [0009]-[0011] and the Examples of the Japanese Patent, which also discloses that the particle size of the semiconductor ranges from 0.01 micrometers to 0.1 micrometers (1 to 100 nm; paragraph [0010]).

Because this reference reads upon the instantly claimed photocatalyst with respect to claims 1-5 in their present, the limitation of claims 6 and 7 regarding the presence of a pore or pores is considered inherently encompassed by this reference.

In view of these teachings, the Japanese Patent anticipates claims 1-7.

6. *Claims 8 and 10-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirai et al. (U. S. Patent No. 6,051,614).*

Hirai et al. disclose a method for preparing a non-aqueous dispersion of metallic particles and/or metal compound particles, said particles being advantageously used for producing catalytic metals (col. 2, lines 50-56, of Hirai et al.; considered to read upon "photocatalyst").

The method involves obtaining aqueous dispersions of metal particles such as metal sulfides (e.g., sulfides of metals such as cadmium) by a conventional method in which an aqueous solution of a metal salt is treated with, for example, a sulfide-forming agent. For example, cadmium sulfide can be obtained by treating an aqueous solution of a metal salt with agents such as sodium sulfide. Depending on what type of metallic particles and/or metal compound particles are desired to be obtained, agents such as sodium hydroxide (col. 5, line 32) may also be employed. See col. 4, line 66 to col. 5, line 35 of Hirai et al. (considered to read upon claims 8, 10, 12, 15, and 18).

Examples of the metal compound particles of the aqueous dispersion to be used in Patentees' invention include particles of metal hydroxides and oxides, e.g., those of metals such as cadmium. See col. 4, line 66 to col. 5, line 5 of Hirai et al. (considered to read upon claims 13 and 14).

Exemplary metal salts to be employed in Patentees' invention include halides, and nitrates. See col. 6, lines 6-10 of Hirai et al. (considered to read upon claims 15-17).

In view of these teachings, Hirai et al. anticipate claims 8 and 10-18.

7. *Claims 1-8, 12, and 19-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Buhler et al. (U. S. Patent No. 4,484,992).*

Buhler et al. disclose a catalyst comprising a cadmium sulfide/semiconductor powder, which is at least partially coated with a noble metal. See col. 2, lines 28-33 of Buhler et al.

Examples of the noble metal include platinum. See col. 3, lines 36-39 of Buhler et al.

The noble metal particles on the semiconductor powder preferably have a particle size ranging from 10 angstroms to 1000 angstroms (1 to 100 nm). See col. 3, lines 62 and 63 of Buhler et al.

Because Buhler et al. is considered to read upon claims 1-5 in their present form, the claim limitations recited in claims 6 and 7 (regarding the presence of pores) are considered inherently encompassed by Buhler et al.

These disclosures are considered to read upon claims 1-7.

The catalyst can be prepared via any of a number of methods, such as by photocatalytic deposition of the metals on the semiconductor powders, advantageously with the addition of acid or salts thereof, in an aqueous solution or suspension of a suitable metal compound or a mixture of suitable metal compounds (col. 4, lines 40-46). See col. 4, line 40 to col. 5, line 66 of Buhler et al.; this disclosure is considered to read upon claims 8, 12, 19, and 20.

Patentees' catalyst is useful in a process for the selective production of hydrogen by means of heterogeneous photoredox catalysis by reacting, e.g., mixtures of water and alkali metal sulfites or sulfides under the action of light in a suspension of a cadmium sulfide/semiconductor (col. 2, lines 23-32), said reaction employing light sources such as sunlight, or any desired light having a wavelength, depending on the semiconductor, between approximately 200 and 650 nm. See col. 4, lines 15-27 of Buhler et al. (considered to read upon claims 21-23).

In view of these teachings, Buhler et al. anticipate claims 1-8, 12, and 19-23.

#### *Information Disclosure Statement*

The reference cited in Applicants' Search Report have been considered, but will be further reviewed, pending the availability to the Examiner of English translations of the documents cited therein.

#### *Conclusion*

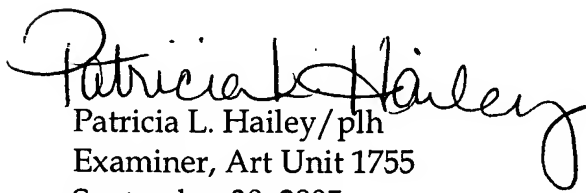
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
September 30, 2005

  
**ANTHONY J. GREEN**  
**PRIMARY EXAMINER**